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**Introduction**

The first computer game (Space War) was created by Steve Russell in 1970, and after that point video games started to be one of the most preferred, addictive and influential types of entertainment in the world. In the 2000, video gaming consoles like Xbox or PlayStation started to be very popular, and the Sony corporation claimed that one out of every four households had a Sony Play station in 2000 (Squire, 2003). With utilization of the internet, video games started to be more complex, social, and influential tool all around the world. Today, millions of people (mostly young adults) are playing video games on a daily basis and video games are one of the leading sectors in the entertainment business. This suggests how important video games are on adolescents’ life, and it would be significantly beneficial to utilize this powerful tool for educational purposes.

As an educator and a computer game player, I wonder how effective a computer game can be for teaching cognitive and literacy skills. Therefore, for this project, I will explore usage of video games in educational settings, analyze a well known computer game in light of Marzano and Kendall’s revised taxonomy and critical literacy.

**Background Information**

The literature relating to computer gaming generally focuses on the following categories; access and use (gender, age, and socio economic status), subject matter (genres, structure of the game), social perceptions (discourses on technology and education), positive and negative effects of computer gaming (educational achievement, cognitive skills, aggression, addiction) (Aguilera, & Mendiz, 2003). Specifically, researchers like Malone and Bowman tried to utilize the idea behind successful video games to create engaging learning environments. In his research, Malone suggested that educational video games should have meaningful goals, should give feedback to students on their progress, should create multiple difficulty levels, and should have random elements of surprise (Squire, 2003).

**Literacy and Video Gaming**

Many young individuals spend significant amount of their time at digital world (internet, video games, and various social media). As Alverman and her colleagues (2004) suggest over twenty million young adult perform various literacy practices (sending e-mail, reading game magazines, creating player guides), but they are less willing to participate school related literacy activities. New generation of students heavily use alternative literacy practices, such as blogs, soft ware (Facebook, MySpace), and video games. Therefore, instructors need to present literacy practices to students, which will be closely reflect their students’ literacy perspectives (Alvermann, Hiddleston & Hagood, 2004), if they desire increase student participation.

Video games and alternative literacy practices not only increase student engagement, but also provide platforms for acquiring many skills: for example, actively speaking, listening, reading, and game playing (Beavis, 2012); and reading images and other semiotic sings (Sanford, & Madill, 2007). Moreover, Beavis (2012) claims that video games might have following positive effects on English literacy curricula: provide opportunities for students to create narratives (especially role playing games); present numerous concepts to shape the game, such images, words, colors, symbols; create opportunities for students for social learning; and encourage students to think critically.

Adequately prepared video games create an environment that allows players to have deeply engaging, visually dramatic, rapidly paced, and highly gratifying pictorial experiences, unlike most of the traditional classroom activities. Moreover, video games generally include rapid changes, and do-able puzzles to players, and these features create suspense on the players and motive them significantly. For example, after a seven years old video player played Age of Mythology, he started to search and read about mythology on the internet, drawing pictures and writing stories about the context very close to the game (Gee, 2003). We can clearly see that how a video game motivates the student to search about the topic s/he was playing.

As the literature suggests video games are powerful learning tools (Sanford & Madill, 2007; Gee, 2003), and they can utilized literacy education, like many other educational field, to increase student engagement and overall student achievement. They can be perceived as a bridge that connects student interest and learning content.

As Gee (2003) suggested, a well-prepared video game significantly supports cognitive learning, and video games can enhance learning in school, at home, and at work. Video games have many features that support learning. For example, a well prepared video game gives the needed information just before the player required it; on the other hand, in school environment teachers generally have difficulties creating any activity to utilize learned knowledge. Moreover, most of the computer games are challenging but do-able, and this situation creates a pleasant frustration. However, in the classroom environments teachers might not create such activities that balance the challenge that well. Moreover, some computer games (like Might and Magic IV) allow user to produce new scenarios, maps, and episodes; however, with traditional learning methods students generally consume the knowledge instead of producing genuine products. Lastly, especially multiplayer games demand team collaboration and sharing skills, knowledge and values, and this synergy create a perfect example for social learning (Gee, 2003).

Lastly, Ferita and Levene (2004) claim that carefully structured video games have the following benefits on learning: increasing motivational level of learners, providing access to learner groups with low literacy and numeracy levels, creating opportunity for collaborative learning, creating potential for personalization in terms of learning style and preferences, increasing perception of individuals, and increasing retention level of learners.

**The Analysis of Witcher with the Revised Bloom’s Taxonomy**

As the literature states, most adequately designed video games demand high visual attention, muscle control, and cognitive thinking ability during the game playing process. Video games also need to be challenging enough to keep players’ attention until the game finishes. Therefore, a good video game should be able to gradually support video game players to meet high cognitive demands of the game playing process. With utilizing Marzano and Kendall’s revised taxonomy, I will analyze Witcher, a game nominated as best fantastic role playing game of 2007, to understand how Witcher helps players to develop students cognitive and literacy skills.

As soon as the game starts, players watch two small demos which give general information and details about the main character, Gerald the Witcher. Game players learn that Gerald was a famous monster slayer, and after he was wounded, he forgets all about his past. Even though he has some comrades and they know the Witcher well, Gerald does not remember any of those characters. I believe these two demos are useful in providing basic information about the game and rationalize and build a solid scenario. Basically, these demos provided primary details about the main character. The game players need to watch these videos and synthesize some information about the main character and the game. As we mention earlier they are actively gathering information.

After the demos finished, players find themselves joining their comrades in battle. The game provides players with a pop-up information screen which gives both written and visual information about how to differentiate enemies and comrades, and how to attack people. Via this pop-up screen the video game provides skills that will be crucial in the later of game. Through thirty five munities of play, I learned that there are three different types of fighting stances as well as which stance is most effective on different kinds of opponents; I discovered that there is a magic system in the game: I learned to use one of these magic spells effectively; and I got used to using the mouse and keyboard simultaneously. During this process, the pop-up screens provided the information I needed, but the game also presented some challenges for me to utilize this knowledge. The game simultaneously provided both conceptual and procedural knowledge. For example when I learned fighting stances the game provided content knowledge since it wasn’t complicated; on the other hand, when I needed to create a potion, the game provided knowledge related to procedures, since creating a potion was very complicated and I couldn’t understand it in a short time. As we can observe, the game players need to exhibit various literacy skills, such as reading texts, images, and signs to gain mastery on the game.

After the players develop basic skills in the early part of the game, they encounter a big and dangerous monster which should be destroyed by the Witcher and his comrades. When I played the game, I started to attack the monster but realized that even though I had hit it, I couldn’t do any damage. As soon as I recognized that there was a problem, I remembered that one of my team mates mentioned that this monster was extremely sensitive to high pitch sound in one of the short demos. In other words, I recognized the problem and retrieved the necessary information to solve the problem. After that point, I searched the field for possible things that might create sound, and I found a bell and two enormous empty cauldrons. I classified the items that might be useful to create high-pitched sound. While my comrades fighting with monster, I rang the bell and saw visible sound waves. At that moment, I understood that my high sound theory was correct, and I should use sound to defeat the monster. I lured my comrades and the monster to the bell and rang the bell, but it didn’t do any effect to monster. I had tested my hypothesis about the solution, and I realized that it did not work properly. After that I thought that I should use higher pitched sounds; therefore, I tried the same process with one of the enormous cauldrons, but I couldn’t get any positive results. However, I realized that the zone in which we were fighting the monster was in the middle of the sound sources. At that point, I realized that I should use the three sound sources at the same time. When I implemented my new hypothesis, all of those high-pitched sounds stunned the monster, and we were able to kill it. As we can see in ten minute segment of the game requires achieving various high cognitive and literacy skills: retrieval, comprehension, and analysis and knowledge utilization.

# After the monster was killed, Gerald went to a village and completed many small quests there. During this time, the player encounters many racist situations, and realizes that most human characters in the game put pressure on non-human characters. Players also realize that in the village there is an organization called “Scoeitel” which aims to create a better environment for the non-human races, often by using illegal methods. In one of these quests, the main character encounters militants of Scoeitel, while he is protecting a merchant’s products (weapon, food, medicine). The militants explain how much they and their family need food and medicine, and how valuable the weapons might be for their course. Players have two choices; they can either give the products on help the illegal organization, or they can refuse to give the products and those militants and their family will not get any food and medicine. To make this decision, the players need to examine their own moral system, and perform a high level cognitive skill (self-system thinking, metacognotion). As a player, I decided to give the products to this illegal organization; however, I later realized that the militants used these weapons to kill civilians and create chaos in some other cities. At that point, I re-evaluated my decision and concluded that I shouldn’t have given these products to those militants. As we can see, I thought about possible effects of my action, and after I realized I made a mistake, I changed it. Throughout whole game playing process, the game presented numerous scenes that exhibit racist activities to highlight issues related with diversity and race, and my decisions significantly were affected by these scenes. I was actively thinking, analyzing, and shaping the storyline with interpreting the signs, the scenes, and the conversations. Therefore, I perceive the Wicther as a very effective critical literacy tool (After I finished the game, I realized that the game was actually adapted from Andrzej Sapkowski’s novels, which were related with racism).

**Conclusion**

Consequently, many researchers believe that video games are powerful tools, and if they are prepared and utilized adequately, they can significantly increase motivation and learning of students (Squire, 2003). Moreover, online video games create an excellent environment for social learning. Lastly, video games might be beneficial for preventing obesity if they are utilized with parental control.

The literature agrees that a well prepared computer game should have following features: clear short-term goals, immediate feedback, do-able challenges, and elements of surprises (Squire, 2003). I believe that most of the video games which are utilizing in American classrooms are not prepared adequately, and if we would increase quality of these video games, they will definitely be more effective on increasing learning and motivation.

Lastly, adequately prepared video games present excellent opportunities to the players for performing cognitive and literacy skills. Moreover, it would be beneficial to integrate usage of video games with educational activities, since many individuals will gladly play these games and not even realize that they are learning or performing high cognitive skills.

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